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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,554	07/27/2001	Tae-jin Lee	Q63310	7393

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EXAMINER	
LEE, JOHN J	
ART UNIT	PAPER NUMBER
2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/915,554	LEE ET AL.	
	Examiner	Art Unit	
	JOHN J. LEE	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-9,11-16 and 19-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-9,11-16,19,21-24, and 30* is/are rejected.

7)☒ Claim(s) *20 and 25-29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-5, 7-9, 11-16, 19, 21-24, and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over van der Tuijn et al. (US 6,683,886) in view of Omi et al. (US 6,940,831).

Regarding **claim 1**, Tuijn discloses that a wireless communication apparatus (Fig. 4) for performing a wireless communication (Fig. 4 and column 2, lines 52 – 64). Tuijn teaches that a transceiving unit (master device or communication device (14) in Fig. 4) for receiving and transmitting data externally (Fig. 3 and column 3, lines 6 – 23, where teaches a wireless communication device (master device) communicates data packets externally), the transceiving unit (master device or communication device (14) in Fig. 4) maintaining a link to at least one slave device (a plurality of slave devices in Fig. 3) (column 3, lines 10 – 64 and Fig. 3, where teaches the master device establishes and maintains a wireless communication link with a plurality of slave devices) and receiving a requested priority from the at least one slave device (column 3, lines 6 – 14 and Fig. 3, where teaches a master communication unit adapted to establish (the slave devices initially upon communication start-up) a plurality of communication links to provide the priority), when the wireless communication apparatus is operated as a master (Fig. 3 and

column 4, lines 25 – 47, where teaches communication unit may be individually referred operating to as a master unit, slave unit, or both). Tuijn teaches that a controller (processing circuitry (18), in Fig. 4) for determining a priority of the at least one slave device (14 in Fig. 3) considering the configuring priority (Fig. 4 and column 4, lines 63 – column 5, lines 18, where teaches a processing circuitry of a communication (master) device is configured to analyze established communication links to determine priority of communications with the associated slave devices), and priority of the other slave devices that are currently linked (Fig. 3 and column 4, lines 63 – column 5, lines 18, where teaches a processing circuitry of a communication (master) device is configured to analyze established communication links to determine priority of communications with the associated slave devices initially communication startup and following coupling of an associated slave unit), determining a frequency of communication (appropriate packets signal of communication) determining according to the priority of the at least one slave device (column 6, lines 63 – column 7, lines 23 and Fig. 8, where teaches the appropriate packets signal are then enabled according to the determined prioritization of the plurality of the slave devices) and controlling the communication with the at least one slave device (column 6, lines 55 – column 7, lines 23 and Fig. 8, where teaches managing packet priority and packet scheduler activates packets according to such priority with the slave devices that the appropriate packets signal are then enabled according to the determined prioritization of the plurality of the slave devices). Tuijn teaches that a memory (21 in Fig. 4) for storing the frequency of communication of the at least one slave device (column 5, lines 20 – 42 and Fig. 4, where teaches the memory stores information for the

corresponding communication links, such information can include communication packet priority, communication link status, and communication link data buffer status).

Tuijn does not specifically disclose the limitation "receiving a requested priority according to the amount of data to be transmitted to the master device from the at least one slave device". However, Omi teaches the limitation "receiving a requested priority according to the amount of data to be transmitted to the master device from the at least one slave device" (column 9, lines 31 – 52 and Fig. 3, where teaches the master device receives a request for transmission request data having transmission amount, speed, data period, and priority according to data amount from the slave device). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn system as taught by Omi. The motivation does so would be to achieve an enhancing controlling data channel/frequency allocation by priority transmission service and improving communication reliability in wireless communication system.

Regarding **claim 2**, Tuijn teaches that the frequency of communication increases as the priority increases (column 3, lines 45 – 64 and Fig. 6, where teaches analyzing data transfer rates of respective communication links using the master station for prioritizing the communication links from those having fastest data transfer rates (high priority) to those having slowest data transfer rates (low priority) associated communicating the data packets using the respective communication links after the prioritizing).

Regarding **claim 3**, Tuijn does not specifically disclose the limitation "the controller assigns a priority lower than the requested priority when the requested priority is not allowable to the at least one slave device". However, Omi teaches the limitation

"the controller assigns a priority lower than the requested priority when the requested priority is not allowable to the at least one slave device" (column 3, lines 19 – 37 and Fig. 15, where teaches scheduler (controller) in the master device rejects the request for setting the communication link (request priority) if a transmission bandwidth which is required for the communication link exceeds (required priority for the communication link) an unused transmission bandwidth). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn's system as taught by Omi. Doing so would enhance controlling bandwidth allocation and improving data signal adaptability in wireless communication system.

Regarding **claim 4**, Tuijn teaches that the controller communicates with the at least one slave device in accordance with the frequency of communication (column 6, lines 55 – column 7, lines 23 and Fig. 8, where teaches control circuitry for managing packet priority and packet scheduler activates packets according to such priority with the slave devices that the appropriate packets signal are then enabled according to the determined prioritization of the plurality of the slave devices).

Regarding **claim 5**, Tuijn and Omi teach all the limitation, as discussed in claim 1. However, Tuijn does not specifically disclose the limitation "the controller subtracts one time from the frequency of communication after each communication between the controller and the at least one slave device". However, Omi teaches the limitation "the controller (12 in Fig. 2) subtracts one time from the frequency of communication after each communication between the controller (12 in Fig. 2) and the at least one slave device (slave device in Fig. 3)" (column 4, lines 3 – 24 and Fig. 2, where teaches

calculating difference value between a data amount parameter (communication parameter) and an amount of data (frequency of communication) to be transmitted and amount of data already received by receiving station, and calculating a priority value by subtracting an overhead bandwidth from an entire transmission bandwidth of the communication). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn's system as taught by Omi. Doing so would achieve improving priority assigning management with dynamically controlling and scheduling communication resource in communication links in wireless communication system.

Regarding **claim 7**, Tuijn does not specifically disclose the limitation "the controller updates the frequency of communication stored in the memory after communicating with the at least one slave device". However, Omi teaches the limitation "the controller updates the frequency of communication stored in the memory after communicating with the at least one slave device" (column 4, lines 25 – 35 and Fig. 2, where teaches the scheduler incorporating with controller updates the received data amount of each communication link to store after received from slave device). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn's system as taught by Omi. Doing so would achieve efficient storing and updating for dynamically controlling and scheduling the communication links in wireless communication system.

Regarding **claim 8**, Tuijn discloses that a wireless communication apparatus (Fig. 4) for performing a wireless communication (Fig. 4 and column 2, lines 52 – 64). Tuijn

teaches that a transceiving unit (master device or communication device (14) in Fig. 4) for receiving and transmitting data externally (Fig. 3 and column 3, lines 6 – 23, where teaches a wireless communication device (master device) communicates data packets externally), the transceiving unit (master device or communication device (14) in Fig. 4) maintaining a link to at least one slave device (a plurality of slave devices in Fig. 3) (column 3, lines 10 – 64 and Fig. 3, where teaches the master device establishes and maintains a wireless communication link with a plurality of slave devices) and receiving a requested priority from the at least one slave device (column 3, lines 6 – 14 and Fig. 3, where teaches a master communication unit adapted to establish (the slave devices initially upon communication start-up) a plurality of communication links to provide the priority), when the wireless communication apparatus is operated as a master (Fig. 3 and column 4, lines 25 – 47, where teaches communication unit may be individually referred operating to as a master unit, slave unit, or both). Tuijn teaches that a controller (processing circuitry (18), in Fig. 4) for determining a priority of the at least one slave device (14 in Fig. 3) considering the configuring priority (Fig. 4 and column 4, lines 63 – column 5, lines 18, where teaches a processing circuitry of a communication (master) device is configured to analyze established communication links to determine priority of communications with the associated slave devices), and priority of the other slave devices that are currently linked (Fig. 3 and column 4, lines 63 – column 5, lines 18, where teaches a processing circuitry of a communication (master) device is configured to analyze established communication links to determine priority of communications with the associated slave devices initially communication startup and following coupling of an

associated slave unit), determining a frequency of communication (appropriate packets signal of communication) determining according to the priority of the at least one slave device (column 6, lines 63 – column 7, lines 23 and Fig. 8, where teaches the appropriate packets signal are then enabled according to the determined prioritization of the plurality of the slave devices) and controlling the communication with the at least one slave device (column 6, lines 55 – column 7, lines 23 and Fig. 8, where teaches managing packet priority and packet scheduler activates packets according to such priority with the slave devices that the appropriate packets signal are then enabled according to the determined prioritization of the plurality of the slave devices). Tuijn teaches that a memory (21 in Fig. 4) for storing the frequency of communication of the at least one slave device (column 5, lines 20 – 42 and Fig. 4, where teaches the memory stores information for the corresponding communication links, such information can include communication packet priority, communication link status, and communication link data buffer status).

Tuijn does not specifically disclose the limitation "receiving a requested priority according to the amount of data to be transmitted to the master device from the at least one slave device". However, Omi teaches the limitation "receiving a requested priority according to the amount of data to be transmitted to the master device from the at least one slave device" (column 9, lines 31 – 52 and Fig. 3, where teaches the master device receives a request for transmission request data having transmission amount, speed, data period, and priority according to data amount from the slave device). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn system as taught by Omi. The motivation does so would be to achieve

an enhancing controlling data channel/frequency allocation by priority transmission service and improving communication reliability in wireless communication system.

Regarding **claim 9**, Tuijn does not specifically disclose the limitation "receiving a requested priority according to the amount of data to be transmitted to the master device from the at least one slave device". However, Omi teaches the limitation "receiving a requested priority according to the amount of data to be transmitted to the master device from the at least one slave device" (column 9, lines 31 – 52 and Fig. 3, where teaches the master device receives a request for transmission request data having transmission amount, speed, data period, and priority according to data amount from the slave device). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn system as taught by Omi. The motivation does so would be to achieve an enhancing controlling data channel/frequency allocation by priority transmission service and improving communication reliability in wireless communication system.

Regarding **claim 11**, Tuijn does not specifically disclose the limitation "the controller assigns a priority lower than the requested priority when the requested priority is not allowable to the at least one slave device". However, Omi discloses the limitation "the controller assigns a priority lower than the requested priority when the requested priority is not allowable to the at least one slave device" (column 3, lines 19 – 37 and Fig. 15, where teaches scheduler (controller) in the master device rejects the request for setting the communication link (request priority) if a transmission bandwidth which is required for the communication link exceeds (required priority for the communication

link) an unused transmission bandwidth). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn's system as taught by Omi. Doing so would enhance controlling bandwidth allocation and improving data signal adaptability in wireless communication system.

Regarding **claim 12**, Tuijn teaches that the master device communicates with the at least one slave device in accordance with the frequency of communication which is demanded according to the priority (column 6, lines 55 – column 7, lines 23 and Fig. 8, where teaches control circuitry for managing packet priority and packet scheduler activates packets according to such priority with the slave devices that the appropriate packets signal are then enabled according to the determined prioritization of the plurality of the slave devices).

Regarding **claim 13**, Tuijn and Omi teach all the limitation, as discussed in claim 1. However, Tuijn does not specifically disclose the limitation "the controller (control circuitry `in Fig. 4) subtracts one time from the frequency of communication after each communication between the controller and the at least one slave device". However, Omi teaches the limitation "the controller (12 in Fig. 2) subtracts one time from the frequency of communication after each communication between the controller (12 in Fig. 2) and the at least one slave device (slave device in Fig. 3)" (column 4, lines 3 – 24 and Fig. 2, where teaches calculating difference value between a data amount parameter (communication parameter) and an amount of data (frequency of communication) to be transmitted and amount of data already received by receiving station, and calculating a priority value by subtracting an overhead bandwidth from an entire transmission

bandwidth of the communication). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn's system as taught by Omi. Doing so would achieve improving priority assigning management with dynamically controlling and scheduling communication resource in communication links in wireless communication system.

Regarding **claim 14**, Tuijn teaches that the frequency of communication increases as the priority increases (column 3, lines 45 – 64 and Fig. 6, where teaches analyzing data transfer rates of respective communication links using the master station for prioritizing the communication links from those having fastest data transfer rates (high priority) to those having slowest data transfer rates (low priority) associated communicating the data packets using the respective communication links after the prioritizing).

Regarding **claim 15**, Tuijn discloses that a wireless communication system (Fig. 4) having at least one slave device and a master device linked with the at least one slave device (Fig. 3 and column 3, lines 6 – 23, where teaches a wireless communication device (master device) communicates data packets externally to a plurality of slave devices). Tuijn teaches that receiving a requested priority from the at least one slave device (column 3, lines 6 – 14 and Fig. 3, where teaches a master communication unit adapted to establish (the slave devices initially upon communication start-up) a plurality of communication links to provide the priority). Tuijn teaches that determining and assigning a priority of the at least one slave device (14 in Fig. 3) considering the configuring priority (Fig. 4 and column 4, lines 63 – column 5, lines 18, where teaches a processing circuitry of a communication (master) device is configured to analyze

established communication links to determine priority of communications with the associated slave devices), Tuijn teaches that communicating with at least one slave device according to the priority (column 6, lines 63 – column 7, lines 23 and Fig. 8, where teaches managing packet priority and packet scheduler activates packets according to such priority with the slave devices that the appropriate packets signal are then enabled according to the determined prioritization of the plurality of the slave devices).

Tuijn does not specifically disclose the limitation "receiving a requested priority from the at least one slave device". However, Omi teaches the limitation "receiving a requested priority from the at least one slave device" (column 9, lines 31 – 52 and Fig. 3, where teaches the master device receives a request for transmission request data having transmission amount, speed, data period, and priority according to data amount from the slave device). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn system as taught by Omi. The motivation does so would be to achieve an enhancing controlling data channel/frequency allocation by priority transmission service and improving communication reliability in wireless communication system.

Tuijn also does not specifically disclose the limitation "subtracts one time from the frequency of communication after each communication with the at least one slave device". However, Omi teaches the limitation "subtracts one time from the frequency of communication after each communication with the at least one slave device" (column 4, lines 3 – 24 and Fig. 2, where teaches calculating difference value between a data amount parameter (communication parameter) and an amount of data (frequency of

communication) to be transmitted and amount of data already received by receiving station, and calculating a priority value by subtracting an overhead bandwidth from an entire transmission bandwidth of the communication). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn's system as taught by Omi. Doing so would achieve improving priority assigning management with dynamically controlling and scheduling communication resource in communication links in wireless communication system.

Regarding **claim 16**, Tuijn does not specifically disclose the limitation "the controller assigns a priority lower than the requested priority when the requested priority is not allowable to the at least one slave device". However, Omi discloses the limitation "the controller assigns a priority lower than the requested priority when the requested priority is not allowable to the at least one slave device" (column 3, lines 19 – 37 and Fig. 15, where teaches scheduler (controller) in the master device rejects the request for setting the communication link (request priority) if a transmission bandwidth which is required for the communication link exceeds (required priority for the communication link) an unused transmission bandwidth). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn's system as taught by Omi. Doing so would enhance controlling bandwidth allocation and improving data signal adaptability in wireless communication system.

Regarding **claim 19**, Tuijn teaches that levels of the priority include high, medium, and low levels (column 7, lines 11 – 23 and Fig. 5, where teaches priority levels includes lowest, middle, and high priority level).

Regarding **claim 21**, Tuijn teaches that the memory stores priorities of the slave devices that currently linked (Fig. 3 and column 4, lines 63 – column 5, lines 43, where teaches a processing circuitry of a communication (master) device is configured to analyze established communication links to determine priority of communications with the associated slave devices initially communication startup and following coupling of an associated slave unit, and the memory stores information for the corresponding communication links, such information can include communication packet priority, communication link status, and communication link data buffer status).

Regarding **claim 22**, Tuijn teaches that levels of the priority include high, medium, and low levels (column 7, lines 11 – 23 and Fig. 5, where teaches priority levels includes lowest, middle, and high priority level).

Regarding **claim 23**, Tuijn teaches that the memory stores a total number of slave device that is currently linked (Fig. 3 and column 5, lines 20 - 43, where teaches the memory stores information for the corresponding communication links, such information can include communication packet priority, communication link status, communication link data buffer status, and priority of communication links (currently linked with slave devices)).

Regarding **claim 24**, Tuijn teaches that the memory (21 in Fig. 4) stores a polling frequency (retrieving data from packets (links, devices)) of each device that is currently linked (Fig. 4 and column 5, lines 10 - 43, where teaches the memory stores retrieving data from packets (linked devices) that is currently linked and memory stores executable instructions for execution by processor).

Regarding **claim 30**, Tuijn does not specifically disclose the limitation "the controller updates a total number of slave devices stored in the memory whenever a slave device becomes linked or unlinked". However, Omi teaches the limitation "the controller updates a total number of slave devices (number of communication linked) stored in the memory whenever a slave device becomes linked or unlinked" (column 4, lines 25 – 35 and Fig. 2, where teaches the scheduler incorporating with controller updates the received data amount of each communication link to store after received from slave devices). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tuijn's system as taught by Omi. Doing so would achieve efficient storing and updating for dynamically controlling and scheduling the communication links in wireless communication system.

Allowable Subject Matter

3. Claims 20 and 25-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to disclose "the memory stores a high priority maximum number which is maximum number of slave devices of a high priority, and a medium priority number which is a maximum number of slave devices of a medium priority, and slave devices have a polling frequency greater than zero are sequentially polled according to their priorities" as specified in the claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kang et al. (US 2002/0089963) discloses Wireless Communication Device, Wireless Communication System Using the Same, and Communication Method Therefor.

Todd et al. (US 6,359,901) discloses Asynchronous Adaptive Protocol Layer Tuning.

Information regarding...Patent Application Information Retrieval (PAIR) system... at 866-217-9197 (toll-free)."

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231
Or P.O. Box 1450
Alexandria VA 22313

or faxed (571) 273-8300, (for formal communications intended for entry)

Or: (703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to USPTO Headquarters, Alexandria, VA.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John J. Lee** whose telephone number is **(571) 272-7880**.

He can normally be reached Monday-Thursday and alternate Fridays from 8:30am-5:00 pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, **Edward Urban**, can be reached on **(571) 272-7899**. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

J.L
March 17, 2007

John J Lee